

You have 15 minutes to show your proof of concept demonstration.

Part A - Practical Demo (10 minutes)

1. Your robot should be fully assembled for this demo. The Arduino board together with the motor driver(s) should be mounted on a breadboard on the 2nd floor. Only the bench power supply must be used for this demo (not the battery pack). You must show an assembled robot before proceeding to the next step.
2. Without the wheels touching any surface, demonstrate the following:
 - Drive motors at 25%, 50%, 75%, 100% of maximum rpm in one direction (both motors at the same time) and show the PWM signals at the motor drivers outputs on the oscilloscope.
 - Drive motors at 25% and 75% of maximum rpm in the opposite direction (both motors at the same time) - no need to show PWM.
 - Drive motors at 25% and 75% of maximum rpm in opposite directions of each other - no need to show PWM.
 - Reverse directions and repeat the step above.
 - Drive the motors such that the rpm is proportional to the angle of tilt from the vertical position. Show a 0 rpm motor speed at the vertical position. Incline the bot in both directions with respect to the vertical, and show how the motor speed increases proportionally with the angle. Both motors should rotate in the same direction - no need to show PWM.

Part B - Q&As (5 minutes)

Answer the questions of the teaching team. The quality of your answers will determine the get you get for each part of the demo. Questions may include explanations of your approach or your Arduino code.

Submission: Upload all the Arduino codes used for this demo.